

p438-439

12, 16, 20, 30, 36

p445-446

16, 20, 30

12. $C(0,0)$

$c=5$

$a=8$

$64 = b^2 + 25$

$39 = b^2$

$$\frac{x^2}{39} + \frac{y^2}{64} = 1$$

16. $(-11,5)(7,5)$

$C(-2,5)$

$a=9$

$b=4$

$$\frac{(x+2)^2}{81} + \frac{(y-5)^2}{16} = 1$$

20. $(10,2)(-8,2)$

$C(1,2)$

$c=5$

$81 = 25 + b^2$

$a=9$

$56 = b^2$

$$\frac{(x-1)^2}{81} + \frac{(y-2)^2}{56} = 1$$

30. $\frac{(x-5)^2}{121} + \frac{(y+11)^2}{144} = 1$

$C(5, -11)$

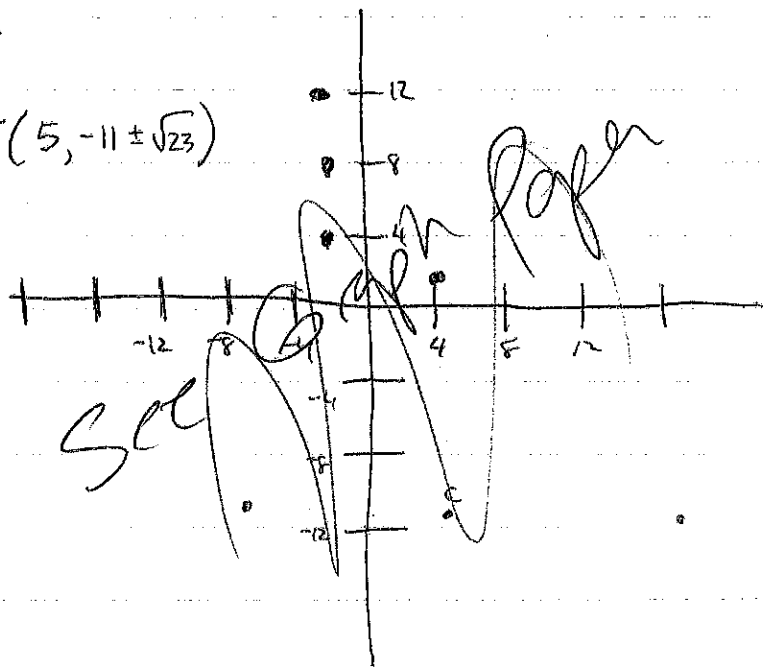
$F(5, -11 \pm \sqrt{23})$

$a=12$ Major = 24

$b=11$ Minor = 22

$c=\sqrt{23}$

$$\begin{aligned} 144 &= 121 + c^2 \\ \sqrt{121} & \\ 23 &= c^2 \end{aligned}$$



$$36. \quad x^2 + 4x + 5y^2 - 70y = -209$$

$$x^2 + 4x + 4 + 5(y^2 - 14y + 49) = -209 + 4 + 245$$

$$(x+2)^2 + 5(y-7)^2 = 40$$

$$\frac{(x+2)^2}{40} + \frac{(y-7)^2}{8} = 1$$

$$C(-2, 7)$$

$$40 = 8 + c^2 \quad a = 2\sqrt{10}$$

$$F(-2 \pm 4\sqrt{2}, 7)$$

$$32 = c^2 \quad b = 2\sqrt{2} \quad \text{major} = 4\sqrt{10}$$

$$4\sqrt{2} = c$$

$$\text{minor} = 4\sqrt{2}$$

p443

$$16. \quad V(0, -4) (0, 4) \quad \text{conj} = 14$$

$$C(0, 0)$$

$$b = 7$$

$$\cancel{16 + 49 = c^2}$$

$$\frac{y^2}{16} - \frac{x^2}{49} = 1$$

$$a = 4$$

20.

$$2a = 12$$

$$a = 6$$

$$2b = 4$$

$$b = 2$$

$$\frac{y^2}{36} - \frac{x^2}{4} = 1$$

$$30. \quad \frac{(y-3)^2}{25} - \frac{(x-2)^2}{16} = 1$$

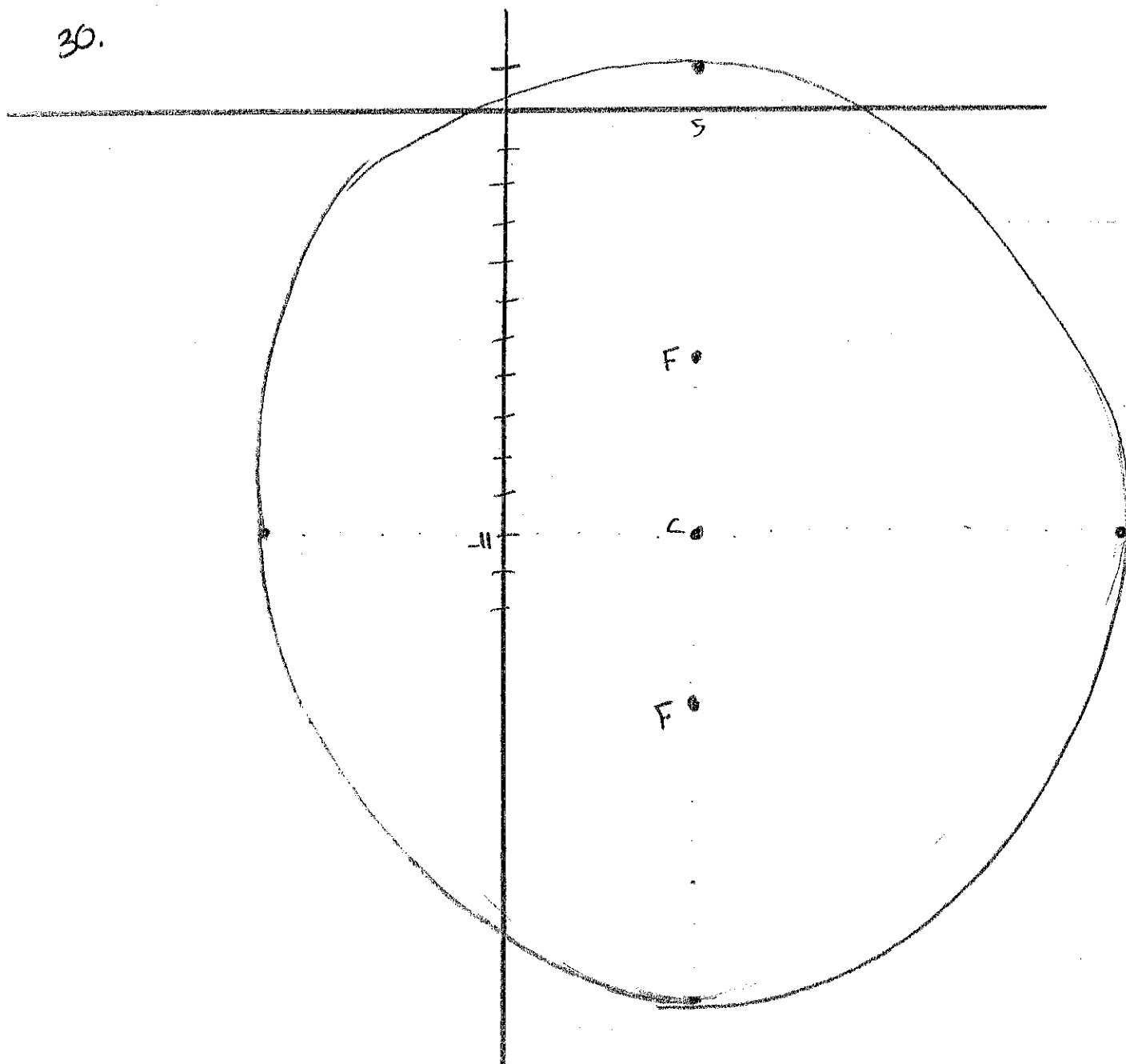
$$C(2, 3)$$

$$a = 5 \quad b = 4 \quad c = \sqrt{41}$$

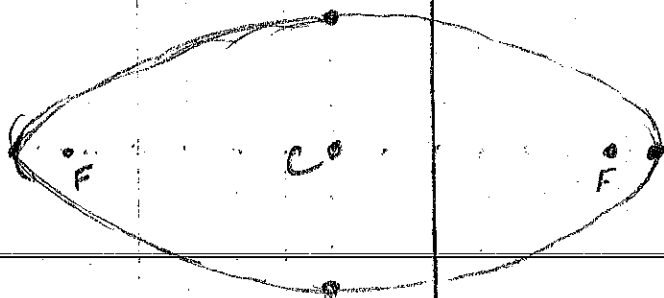
$$V(2, 8) (2, -2)$$

$$F(2, 3 \pm \sqrt{41})$$

30.



30.



30.

